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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,595	05/15/2001	Saul R. Dooley	GB 000071	9376

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EXAMINER	
ODOM, CURTIS B	
ART UNIT	**PAPER NUMBER**
2634	5

DATE MAILED: 07/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/855,595	DOOLEY ET AL.	
	Examiner	Art Unit	
	Curtis B. Odom	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,28,30-35,42,44-50 and 53* is/are rejected.

7)☒ Claim(s) *10-27,29,36-41,43,51 and 52* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 May 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because all elements of each drawing figure are suggested to be labeled (see Fig. 4). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because it contains more than one paragraph (see above) and on line 21. "[Figure 2]" is suggested to be deleted. Correction is required. See MPEP § 608.01(b).

4. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

3. As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
(e) BACKGROUND OF THE INVENTION.
(1) Field of the Invention.
(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(f) BRIEF SUMMARY OF THE INVENTION.
(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(h) DETAILED DESCRIPTION OF THE INVENTION.
(i) CLAIM OR CLAIMS (commencing on a separate sheet).
(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

4. The disclosure is objected to because of the following informalities: There are no section headings (see above). Appropriate correction is required.

5. The disclosure is also objected to because of the following informalities:

a. On page 3, line 14, the word "minimize" is suggested to be changed to "minimize".

b. On page 3, line 17, the word "realisation" is suggested to be changed to "realization".

c. On page 4, line 3, the phrase "10 to 50" is suggested to be changed to "ten to fifty".

d. On page 4, liens 29, the phrase "M S Ryan and G R Nudds" is suggested to be changed to "M. S. Ryan and G. R. Nudds".

e. On page 4, line 32, the name "J Viterbi" is suggested to be changed to "J. Viterbi".

f. On page 6, lines 25-28 are suggested to be deleted.

Appropriate correction is required.

Claim Objections

6. Claims 1, 8, 9, 13, 14, 15, 16, 23, 35, 46, and 49 are objected to because of the following informalities:

a. In claim 1, the word "minimize" is suggested to be changed to "minimize".

b. In claim 8, "10" is suggested to be changed to the word "ten".

c. In claim 9, "50" is suggested to be changed to the word "fifty".

d. In claim 13, the phrase "the identification" is suggested to be changed to "an identification".

e. In claim 14, the phrase "the most likely" is suggested to be changed to "a most likely".

f. In claim 16 and 36, the phrase "(hereafter "the reference signal")" is suggested to be deleted and the phrase "spread spectrum signal which has already..." is suggested to be changed to "spread spectrum signal (reference signal) which has already...".

g. In claims 19 and 39, the phrase "the dwell time" is suggested to be changed to "a dwell time" and the word "acquiring" is suggested to be changed to "acquire".

h. In claim 23, the phrase "the corresponding" is suggested to be changed to "a corresponding".

i. In claims 35 and 49, the phrase "the polarity" is suggested to be changed to "a polarity".

j. In claim 37, the phrase "according to claim 37" is suggested to be changed to "according to claim 36".

k. In claim 46, the phrase "the sum" is suggested to be changed to "a sum".

Appropriate correction is required.

7. Claims 10-27, 28, 36-41, 43, 51, and 52 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claims. See MPEP § 608.01(n). Accordingly, the claims 10-27, 28, 36-41, 43, 51, and 52 have not been further treated on the merits.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 6-9, 34, 35, 48, and 49 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 6, 34, and 48 recite the claim limitation "separating data bits of differing polarity" However, after reviewing the specification of the instant application, the examiner cannot find a description of how or when the data bits of differing polarity are separated.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 28, 42, 50, and 53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claims 1, 2, 4, 5, 30-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Fuchs et al. (U. S. Patent No. 6, 453, 237).

Regarding claim 1, Fuchs et al. discloses a method of despreading (Fig. 8, column 19, line 41-column 21, line 2) a target spread spectrum signal containing pseudorandom noise (PRN) code sequences modulated by a data message comprising the steps of:

providing (column 16, lines 46-59) data message information relating to the timing of an epoch of at least one data bit of the target signal; and

performing (Fig. 8, column 20, line 15-67) a correlation of the target signal (input data) and a replica signal containing corresponding PRN code sequences using the data message

information to minimize degradation of the correlation caused by variations in the PRN code sequences (column 20, line 51-column 21, line 2) in the target signal attributable to modulation by the data message.

Regarding claim 2, which inherits the limitations of claim 1, Fuchs et al. discloses the correlation is timed so as to substantially avoid continuous correlation over an epoch of a data bit (column 20, lines 29-37), wherein since an epoch is representative of the length of a PN code (column 16, lines 46-59), then the correlations are timed at only a half on an epoch.

Regarding claim 4, which inherits the limitations of claim 2, Fuchs et al. discloses a correlation output is provided as a function of the sum of correlation values returned for a series of individual, continuous correlations. (Fig. 8, block 804, column 20, lines 15-22 and 38-45).

Regarding claim 5, which inherits the limitations of claim 1, Fuchs et al. discloses the data message information further comprises data bit information relating to at least part of the data message; and wherein the correlation is modified as a function of the data message information (column 16, lines 46-65), wherein the amount of data bit information determines the length of the correlation.

Regarding claim 30, Fuchs et al. discloses a mobile unit (Fig. 8) comprising a receiver for receiving a target spread spectrum signal (column 16, lines 46-59) containing pseudorandom noise (PRN) code sequences modulated by a data message, and a signal containing data message information relating to the timing of an epoch of at least one data bit; and a processor (Fig. 8, block 800, column 20, lines 15-67) for generating a replica signal containing PRN code sequences corresponding to those of the target signal and performing a correlation of the target signal and the replica signal; wherein the data message information is used to reduce degradation

of the correlation caused by variations in the PRN code sequences in the target signal attributable to modulation by the data message (column 20, line 51-column 21, line 2).

Regarding claim 31, which inherits the limitations of claim 30, Fuchs et al. discloses the correlation is timed so as to substantially avoid continuous correlation over an epoch of a data bit (column 20, lines 29-37), wherein since an epoch is representative of the length of a PN code (column 16, lines 46-59), then the correlations are timed at only a half on an epoch.

Regarding claim 32, which inherits the limitations of claim 31, Fuchs et al. discloses a correlation output is provided as a function of the sum of correlation values returned for a series of individual, continuous correlations. (Fig. 8, block 804, column 20, lines 15-22 and 38-45).

Regarding claim 33, which inherits the limitations of claim 30, Fuchs et al. discloses the data message information further comprises data bit information relating to at least part of the data message; and wherein the correlation is modified as a function of the data message information (column 16, lines 46-65), wherein the amount of data bit information determines the length of the correlation.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claims 3, 7-9, 44-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuchs et al. (U. S. Patent No. 6, 453, 237).

Regarding claim 3, which inherits the limitations of claim 2, Fuchs et al. does not disclose the correlation is timed so as to occupy more than 80% but less than 100% of the data bit width. However, Fuchs et al. discloses the data bit width is equivalent to twenty epochs (column 16, lines 46-59) and that the correlation used to detect the input signal takes place over nine epochs (column 20, lines 51-60), which is equivalent to 45% of the data bit width. Fuchs et al. also discloses that the correlation process can take place over more than nine epochs (column 20, line 51-column 21, line 2) by using non-coherent averaging of the correlation values to detect the input signal. Therefore, would have been obvious to one skilled in the art at the time the invention was made to time the correlation so as to occupy more than 80% but less than 100%, since correlating more of the data bit width would allow the detection of weak signals degraded by noise, interference, and cross-correlation (column 20, line 39-column 21, line 2).

Regarding claims 7-9, Fuchs et al. does not disclose a continuous correlation occurs over a time period greater than, 10 times greater than, or 50 times greater than the transmission period of a single data bit. However, Fuchs et al. does disclose, the correlation process can occur over a desired interval using non-conherent averaging of the correlation values (column 20, line 51-column 21, line 2). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have the correlation occur over a time period greater than, 10 times greater than, or 50 times greater than the transmission period of a single data bit since correlating over a time period greater than the transmission period would allow the detection of weak signals degraded by noise, interference, and cross-correlation (column 20, line 39-column 21, line 2).

Regarding claim 30, Fuchs et al. discloses a mobile unit (Fig. 8) comprising a receiver for receiving a target spread spectrum signal (column 16, lines 46-59) containing pseudorandom noise (PRN) code sequences modulated by a data message, and a signal containing data message information relating to the timing of an epoch of at least one data bit; and a processor (Fig. 8, block 800, column 20, lines 15-67) for generating a replica signal containing PRN code sequences corresponding to those of the target signal and performing a correlation of the target signal and the replica signal; wherein the data message information is used to reduce degradation of the correlation caused by variations in the PRN code sequences in the target signal attributable to modulation by the data message (column 20, line 51-column 21, line 2).

Regarding claims 44-47, Fuchs et al. discloses all the limitations of claims 44-47 (see rejection of claims 30-33) except the receiver being implemented into a base station instead of a mobile unit. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that it is well known in the art that base stations can not only transmit, but also receive messages. In order to receive a message, the base station must comprise of a receiver. Thus, implementing the receiver of Fuchs et al. into a base station would allow the reception of signals from mobile units and the detection of weak signals degraded by noise, interference, and cross-correlation (column 20, line 39-column 21, line 2).

16. Claims 35 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuchs et al. (U. S. Patent No. 6, 453, 237) in view of Krasner (U. S. Patent No. 6, 208, 291). Regarding claims 35 and 49, Fuchs et al. discloses all the limitation of claims 35 and 49 (see rejection of claims 33 and 47) except data bit modulation of the PRN code sequences in the target signal is the same as or equivalent to exclusive-or modulation; and wherein the polarity of PRN code

sequences in the replica signal is selectively reversed as a function of the data message information.

Krasner also discloses a correlator system for detecting GPS signals (target signals). Krasner discloses the standard GPS signal contains PRN code sequences modulated using BPSK modulation, which is an exclusive-or modulation (column 1, lines 33-48). Krasner also discloses that in order to detect the signals, a correlation between the target signal (GPS signal) and a replica of the PRN code sequences must take place (column 5, lines 38-56). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention that the system of Fuchs et al. could have also detected exclusive-or modulated signals as taught by Krasner since Fuchs et al. also detects GPS signals. It would have been obvious to one of ordinary skill in the art at the time the invention to modify the device of Fuchs et al. with the teachings of Krasner and produce replica PRN code sequences to detect the received signal in order to provide an accurate detection of the received signal. When producing a replica of the received PRN sequence, it is obvious that the bits of the replica signal would have to be reversed to match the received PRN sequence in order for the produced sequence to replicate the received PRN sequence.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Eschenbach (U. S. Patent No. 6, 546, 040) discloses despreading a target signal including PRN code sequences with a data message information relating to the timing of an epoch.

Fenton et al. (U. S. Patent No. 5, 495, 499) also discloses despreading a target signal including PRN code sequences with a data message information relating to the timing of an epoch, including the selection of dwell time.

Hindman et al. (U. S. Patent No. 6, 160, 858) discloses timing the correlation in a despreading apparatus with regards to the timing of an epoch and the data bit width.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 703-305-4097. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Curtis Odom
July 15, 2004

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